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ALLEMAGNE

Eingang bei ZPL

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Continue the prosecution

Datum/Date

25.09.03

Zeichen/Ref./Réf.

113928

Anmeldung Nr./Application No./Demande / Patent Nr./Patent No./Brevet n°.

03360016.4-1246-

Anmelder/Applicant/Demandeur/Patentinhaber/Propriétaire/Titulaire

ALCATEL

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☐ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

☒ abstract

☒ title

☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract: 1

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 6 233 077 B1 (ALEXANDER STEPHEN B ET AL) 15 May 2001 (2001-05-15) * column 5, line 5 - line 20 * * figure 2 *	1,9,12,13	H04B10/16 H04Q11/00
Y	---	2-6,10	
Y	US 2002/121397 A1 (SAARINEN INTO) 5 September 2002 (2002-09-05) * page 2, column 1, paragraph 23 - column 2, paragraph 27 * * page 4, column 1, paragraph 72 - paragraph 78 * * page 9, column 2, paragraph 186 - paragraph 188 * * figures 2,19 *	2-4	
Y	---	5,6	
A	US 6 067 180 A (ROBERTS KIM BYRON) 23 May 2000 (2000-05-23) * column 3, line 10 - line 32 * * figure 6 *	7	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Y	ZHOU J ET AL: "POWER MEASUREMENT SYSTEM DESIGN MODELLING OF OPTICAL MULTI-WAVELENGTH TRANSPORT NETWORKS" PROCEEDINGS OF THE GLOBAL TELECOMMUNICATIONS CONFERENCE (GLOBECOM). SAN FRANCISCO, NOV. 28 - DEC. 2, 1994, NEW YORK, IEEE, US, vol. 3, 28 November 1994 (1994-11-28), pages 1503-1507, XP000488780 ISBN: 0-7803-1821-8 * page 1, column 1, paragraph 3 * * page 1, column 2, paragraph 2 * * figure 1 *	10	H04B H04Q
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 September 2003	Examiner Vaquero, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 5 323 423 A (TOWNSEND JEFFREY A ET AL) 21 June 1994 (1994-06-21) * column 1, line 54 - line 58 * * column 4, line 3 - line 40 * * figure 2 * -----	5-8	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 September 2003	Examiner Vaquero, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 36 0016

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-09-2003

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 6233077	B1	15-05-2001	US	5715076 A	03-02-1998
			US	5726784 A	10-03-1998
			US	5504609 A	02-04-1996
			US	2001013964 A1	16-08-2001
			AU	1272599 A	10-05-1999
			EP	0951765 A1	27-10-1999
			WO	9921316 A1	29-04-1999
			US	5784184 A	21-07-1998
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			AU	4658901 A	24-09-2001
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			EP	1178899 A1	13-02-2002
			WO	0168400 A1	20-09-2001
US 6067180	A	23-05-2000	CA	2238449 A1	09-12-1998
			EP	0884867 A2	16-12-1998
			JP	11072811 A	16-03-1999
US 5323423	A	21-06-1994	DE	69428524 D1	08-11-2001
			DE	69428524 T2	08-05-2002
			EP	0687398 A1	20-12-1995
			IL	108812 A	10-01-1997
			WO	9421039 A1	15-09-1994



This application is covered by the extended European search report pilot project at present running within the European Patent Office, applied to all European patent applications filed as first filing and searched on or after 01.07.03. Under this project the EPO issues together with the search report an opinion on whether the application and the invention to which it relates meet the requirements of the EPC. This non-binding opinion is issued free of charge as a service. This opinion may be used as the basis for an informed decision as to whether it is desired to pursue the application further or not.

For further details of this pilot project, the applicant's attention is directed to the Official Journal edition 5/2003. If any further immediate questions or comments arise the EPO Customer Services: +31-70-340 4500 or +49-89-2399 2828 can be contacted.

The attached opinion reveals that the application or the invention to which it relates appear not to meet the requirements of the Convention (see comments on enclosed Form 2906).

If the applicant wishes to continue with this application the examination fee must be paid. Where appropriate amendments can be filed to address the objections raised in the opinion, thus shortening the overall procedure. If no amendments are filed, the opinion will be re-issued as the first official communication under Article 96(2) and Rule 51(2) EPC.

If the examination fee has already been paid and the right to the communication under Article 96(1) EPC has been waived for this application, the first official communication under Article 96(2) and Rule 51(2) EPC will be issued promptly.



The examination is being carried out on the following application documents:

Text for the Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR LI

Description, pages:

1-11 as originally filed

Claims, No.:

1-13 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

1. The following documents (D1,D2,D3 and D4) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US-B1-6233077 (ALEXANDER STEPHEN B ET AL) 15 May 2001 (2001-02-15)

D2: US-A1-2002121397 (SAARINEN INTO) 5 September 2002 (2002-09-05)

D3: US-A-6067180 (ROBERTS KIM BYRON) 23 May 2000 (2000-05-23)

D4: ZHOU J ET AL: 'POWER MEASUREMENT SYSTEM DESIGN MODELLING OF OPTICAL MULTI- WAVELENGTH TRANSPORT NETWORKS' PROCEEDINGS OF THE GLOBAL TELECOMMUNICATIONS CONFERENCE (GLOBECOM). SAN FRANCISCO, NOV. 28 - DEC. 2, 1994, NEW YORK, IEEE, US, vol. 3, 28 November 1994 (1994-11-28), pages 1503-1507, XP000488780 ISBN: 0-7803-1821-8

2. The application does not meet the requirements of **Article 84 EPC**, because claims 1,9 and 10 are not clear.



2.1 Firstly, the terms "higher bitrate" and "lower bitrate" used in said claims 1 and 9 are vague and imprecise, and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claims unclear (Article 84 EPC).

2.2 Secondly, it appears from the description on page 1, line 26 - page 2 line 3 that the following feature is **essential** to the definition of the invention:

(1) an electrical signal regenerator for high bitrate electrical signals suitable to be used in network elements of an optical transmission network

Since independent claims 1 and 9 do not contain this feature, they do not meet the requirement following from Article 84 EPC taken in combination with **Rules 29(1) and (3) EPC** that any independent claim must contain all the technical features essential to the definition of the invention.

2.3 Thirdly, the statement "connect the data recovery circuit to the output (7)" in claims 1 and 9 is not clear under Article 84 EPC. The applicant is kindly requested to clarify that the wording "output" is referring to the "output of the electrical signal regenerator".

2.4 Finally the subject-matter of claim 10 lacks of clarity as well, because it includes an optical crossconnect although the rest of the claim refers to electrical signals or cables. Additionally, it is not clear whether optical or electrical signals are input to the system. The applicant is kindly requested to draft this claim in a way that clearly differentiates what belongs to the optical domain from what belongs to the electrical domain.

3. The present application does not meet the requirements of **Article 52(1) EPC**, because the subject-matter of claims 1, 9 and 12 is not **new** in the sense of **Article 54(1) and (2) EPC**.

3.1 Claim 1

Document D1, which is considered to represent the most relevant state of the art, discloses:



An electrical signal regenerator (column 2, lines 64-67) comprising an equalizer (column 5, lines 11-12; Figure 2, element 33) and a clock data recovery circuit (column 5, line 14) and a switch (column 5, line 15), said switch being operable to either connect the data recovery circuit to the output when an input signal of a higher bitrate multiplex signal is detected or to bypass the data recovery circuit and connect the equalizer to the output when an input signal of a lower bitrate multiplex is detected (column 5, lines 13-19).

Therefore, the subject-matter of claim 1 is not novel (Article 52(1) and 54 EPC).

3.2 Claim 9

Document D1 discloses a network element, comprising internal electrical signal paths (Figure 2, path after element 31), wherein at least part of said paths are terminated by an electrical signal regenerator (column 2, lines 64-67) comprising an equalizer (column 5, lines 11-12; Figure 2, elements 33 and 34) and a clock data recovery circuit (column 5, line 14; Figure 2, element 43) and a switch (column 5, line 15; Figure 2, elements 40 and 41), said switch being operable to either connect the data recovery circuit to the output when an input signal of a higher bitrate multiplex signal is detected or to bypass the data recovery circuit and connect the equalizer to the output when an input signal of a lower bitrate multiplex is detected (column 5, lines 13-19).

Therefore, the subject-matter of claim 9 is not novel (Article 52(1) and 54 EPC).

3.3 Claim 12

Document D1 discloses a method of transmitting an electrical signal having either a first or a second bitrate, wherein the first bitrate is higher than the second bitrate, said method comprising the steps of:

- transmitting said electrical signal via a signal path (Figure 2, element 31); detecting the bitrate of said electrical signal received from the signal path (column 5, lines 14-15); in case the electrical signal has the first bitrate, performing a first regeneration of said electrical signal (Figure 2, transimpedance amplifier 32) and then performing a second regeneration (Figure 2, clock/data recovery 43) and in case the signal has a second bitrate, performing said first regeneration of said signal, only (column 5, lines 10-13).



Therefore, the subject-matter of claim 12 is not novel (Article 52(1) and 54 EPC).

4. Dependent claims 2-6, 10, 13 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to **inventive step** according to **Article 52(1) and 56 EPC**, the reasons being as follows:

4.2 The additional features of dependent claims 2-4 have already been employed for the same purpose in a similar electrical signal regenerator, disclosed in document D2 as follows:

<u>claim 2</u>	paragraph 23 and paragraph 78
<u>claim 3</u>	paragraph 76
<u>claim 4</u>	paragraph 73

It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to an electrical signal regenerator according to document D1, thus arriving to the features described in said claims.

4.2 The additional features of claims 5-6 are disclosed in document D3 column 3, lines 17-32; Figure 6. The skilled person would therefore regard it as a normal option to include these features in the signal regenerator described in document D1.

4.3 The additional features of dependent claim 10 have already been employed for the same purpose in a similar optical crossconnect, see document D4, page 1, paragraph 3 and Figure 1. Said document D4 discloses the use of an optical signal regenerator at each input of an optical crossconnect in the optical domain. It would therefore be obvious to the person skilled in the art, to apply these features with corresponding effect to the electrical domain using the electrical regenerator disclosed in D1, thus arriving at an optical crossconnect according to claim 10.

4.4 In claim 13, a slight constructional change in the regenerator of document D1 is suggested. The equalizer is used with both lower and higher bitrates, whereas in the document D1 the equalizer is used only in the case of lower bitrates. The skilled person would regard this as a constructional possibility among others. Consequently, the subject-



matter of claim 13 also appears to lack an inventive step.

5. Taking into account the above-mentioned objection, the applicant is therefore requested to file suitable amendments upon which the further prosecution of the application is to be based. In this case, the following points should also be taken into account :

5.1 To meet the requirements of **Rule 27(1)(b) EPC**, the document D1 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

5.2 When filing amended claims the applicant should at the same time bring the description into conformity with the amended claims. Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (**Article 123(2) EPC**).

5.3 In order to facilitate the examination of the conformity of the amended application with the requirements of **Article 123(2) EPC**, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.

5.4 Independent claims 1,9,12 are not in the two-part form in accordance with **Rule 29(1) EPC**, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 29(1)(a) EPC) and with the remaining features being included in the characterising part (Rule 29(1)(b) EPC).

If, however, the applicant is of the opinion that the two-part form would be inappropriate, then reasons therefor should be provided in the letter of reply. In addition, the applicant



should ensure that it is clear from the description which features of the subject-matter of claims 1,9,12 are already known in combination from the document D1 (see the Guidelines, C-III, 2.3b).

5.5 The vague and imprecise statement in the description on page 11, lines 19-24 (spirit of the invention) implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity of the claims (Article 84 EPC) when used to interpret them (see the Guidelines, C-III, 4.3a). This statement should therefore be amended to remove this inconsistency.

5.6 Claims 1 and 9 have been drafted as separate independent claims. Under Article 84 in combination with Rule 29(2) EPC an application may contain more than one independent claim in a particular category only if the subject matter claimed falls within one or more of the exceptional situations set out in paragraphs (a), (b) or (c) of Rule 29(2) EPC. However, this is not the case in the present application.

5.7 The attention of the applicant is drawn to the following clerical mistakes:

- in the description, page 6, lines 23-34, "Figure 5a, 5b, 5c" should be replaced by "4a, 4b, 4c" to refer to the appropriated drawings.
- in the description, page 7, lines 1-10, "Figure 6" should be replaced by "Figure 5" to refer to the appropriated drawing.
- in claims 1 and 9, the reference sign "input signal (7)" should be replaced by "input signal 6")

5.8 The statement "which are incorporated here by reference", following the acknowledgement of background art in the description, page 8, lines 19 and 24, page 10 line 24 should be deleted, as it is not clear which part of the cited documents should be included in the present application. The presence of such a statement is contrary to the Article 84 EPC (see also Guidelines C-II, 4.18).